REMARKS

An Office Action was mailed on January 8, 2004. Claims 1-20 are pending.

PRIORITY

The Examiner is respectfully requested to acknowledge receipt of Applicant's Certified Copy of German Application 100 31 388.4, which was filed in the USPTO on March 11, 2004.

OATH/DECLARATION

Applicant will provide a new oath or declaration that overcomes the deficiencies of the original oath or declaration in due course.

DRAWINGS AND SPECIFICATION

The drawings are objected to because they fail to show the "AND circuit" in claim 6. Applicant has removed the "AND circuit" from claim 6, thus rendering the drawing objection moot.

The specification is objected to because the "identification features" of claims 16-20 lacks antecedent basis. Responsive thereto, the Examiner is respectfully directed to page 16, paragraph 3 and in figure 2 (see reference number 21) of the specification. Thus, the specification provides antecedent basis for the subject matter claimed.

INFORMATION DISCLOSURE STATEMENT

Applicant is submitting herewith an IDS for the review and consideration of the Examiner. Such IDS includes copies of DE documents (one being a US equivalent) cited in Applicant's IDS dated September 20, 2001, but not considered by the Examiner. Such documents are now accompanied by English-language abstracts as required by MPEP §609.

OBJECTION TO THE CLAIMS

Claims 4, 6, 8 and 10-20 are objected to because of handwriting on the original sheets. Responsive thereto, Applicant is submitting herewith substitute sheets 27-29 without handwriting.

Claim 13 is objected to under 37 CFR §1.75(c), as being of improper dependent form. Claim 1 as amended includes a laser. Accordingly, claim 13 is believed to be proper.

Claims 7, 9 and 10 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Responsive thereto, Applicant respectfully notes that the subject matter of claim 7 is described in detail in the specification on page 5, the subject matter of claim 9 is described in detail in figure 5 and page 19, bottom to the middle of page 21, and the subject matter of claim 10 is described in the specification on the middle of page 11 to the top of page 12. The subject matter of original claim 7 relating to the laser passage through lineoptics is described at the top of page 15. Accordingly, it is respectfully requested that the Examiner withdraw the objections to the claims.

REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 8, 12, 14, 16 and 19 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Responsive thereto, Applicant has amended the claims to overcome such §112, second paragraph rejections in a self-evident manner. Accordingly, it is respectfully requested that the Examiner withdraw the rejection under 35 U.S.C. § 112, second paragraph.

SUPPORT FOR CLAIM AMENDMENTS

Applicant has amended many of the original claims, support for which is recited *in italics* in the amended claim set reproduced below. Most amendments have been taken from the original wording of claim 1, 7 and 8. The wording has been changed in proper order merely to clarify the technical structure of the subject matter of claim 1. To unify the language of all claims in the claims the wording "object" has been changed to -- document --. Furthermore in

claim 1 the language with regard to "wavelength," "excitation wavelength" and "response wavelength" has been clarified. The wording "receiving optics" in claim 15 has been changed to -- detection optics -- (see page 21, paragraph 3). This amendment has been made to unify the wording of the claims. As there is no other receiving optic in the application instead of the detection optic it is also clear, that the receiving optics is identical to the detection optics. In addition, the amendment of claim 18 is disclosed on page 5, paragraph 4 and claim 19, and for the sake of unified wording -- response wavelength -- is used instead of "emission wavelength".

1. (currently amended) A sensor for authenticity identification of a luminescent identification feature on a document comprising:

a beam source and a focusing optics for illuminating the identification feature with a focused beam at a wavelength *(page 15, para. 1)* in the form of an excitation wavelength to optically excite at least a subregion of the identification feature and wherein the identification feature may respond in an optical response signal at a same *(page 5, para. 4; claim 7)* or different wavelength in the form of a response wavelength,

a radiation receiver for detecting and evaluating the response wavelength,

wherein the focused beam is emitted from the beam source and is converted by focusing optics in such a manner that a scanning bar approximately in the form of a line is projected on the surface of the document *(page 3)* and having a detection optics and an evaluation unit *(page 3, para. 4)*,

wherein the optical response signal is passed via detection optics to the evaluation unit which evaluates the optical response signal, and

wherein the sensor is a manually controlled sensor, the beam source is formed as a laser *(page 6, para. 2)*, and the focusing optics has a lineoptics comprising a cylindrical lens *(page 9, last para.; page 11, para. 2, para. 4; page 15, para. 2)*,

wherein the focused beam is a laser focused beam, which is produced by the laser passed through the lineoptics and is imaged differently in the X-direction and Y-direction on the document *(claim 7, 8)*.

2. (currently amended) The sensor as claimed in claim 1, **wherein** the sensor has a head surface and a proximity identification, which switches on a laser only when the

document is located closely in front of and touching an outlet window in the head surface.

3. (original) The sensor as claimed in claim 2, **wherein** the proximity identification operates without making contact.

4. (currently amended) The sensor as claimed in claim 2 or 3, **wherein** the proximity identification reacts to diffuse reflection on the surface of the document.

5. (currently amended) The sensor as claimed in claim 2, **wherein** the proximity identification operates by touching the document.

6. (currently amended) The sensor as claimed in claim 2, **wherein**, in addition to the proximity identification, a manually operated pushbutton is provided, which is coupled to the proximity identification or whose previous operation is a prior condition for activation of the laser after identification of the proximity within a short time window.

7. (currently amended) A sensor as claimed in claim 1, wherein the response wavelength is a shorter, longer or equal wavelength compared to the excitation wavelength *(page 5)*.

8. (canceled)

9. (currently amended) The sensor as claimed in claim 1, **wherein** the focusing in the X-plane and Y-plane is produced at a different height above the document *(page 20, para. 4)*.

10. (currently amended) The sensor as claimed in claim 7, **wherein** the largest angles of the focused beams in the X-plane or Y-plane reach an angle of more than +/-10° to the optical axis.

11. (currently amended) The sensor as claimed in claim 30, **wherein** the external light identification is integrated in a reception path of the authenticity identification of the identification feature.

12. (currently amended) The sensor as claimed in claim 3, **wherein** an external light identification, which obviates switching on of the laser when external light or ambient light is being received by the external light identification, is integrated in the arrangement for proximity identification without making contact.

13. (currently amended) The sensor as claimed in claim 1, **wherein** the laser is classified in laser class 3A.

14. (currently amended) The sensor as claimed in claim 1, **wherein** the laser is pulsed.

15. (currently amended) The sensor as claimed in claim 1, **wherein** the detection optics is a wide-aperture receiving optics with an aperture ratio of virtually 1 or less *(page 21, para. 3)*.

16. (currently amended) The sensor as claimed in claim 14, wherein, in order to identify the identification feature on a document, the sensor is adapted to use the up-conversion effect, wherein the excitation wavelength is longer than the response wavelength *(page 5, para. 2)*.

17. (currently amended) The sensor as claimed in claim 14, **wherein** in order to identify the identification feature on a document, the sensor is adapted to use the down-conversion effect, wherein the response wavelength is longer than the excitation wavelength *(page 5, para. 3)*.

18. (currently amended) The sensor as claimed in claim 14, **wherein** in order to identify the identification feature on a document, the sensor is adapted to use the fluorescence effect, wherein the excitation wavelength is the same wavelength as the response wavelength *(page 5, para. 4; claim 19)*.

19. (currently amended) The sensor as claimed in claim 18, **wherein** a pulse response is delayed in time with respect to an excitation pulse.

20. (canceled)

21. (new) The sensor as claimed in claim 1, wherein the laser is formed as a laser diode *(page 14, last para.)*.

22. (new) The sensor as claimed in claim 1, wherein the evaluation unit is formed as a receiving element *(page 17, para. 2)*.

23. (new) The sensor as claimed in claim 22, wherein the receiving element is formed as a photodiode or an avalanche photodiode or a photomultiplier *(page 17, para. 2)*.

24. (new) The sensor as claimed in claim 1, wherein the cylindrical lens is a focusing cylindrical lens *(page 20, para. 2)*.

25. (new) The sensor as claimed in claim 1, wherein the cylindrical lens is a divergent cylindrical lens *(page 20, para. 2)*.

26. (new) The sensor as claimed in claim 1, wherein the cylindrical lens has an aspherical, conical surface *(page 11, last para.)*.

27. (new) The sensor as claimed in claim 1, wherein the lineoptics comprises defractive optical elements or a Fresnel lens or a sinusoidal surface *(page 12, first para.)*.

28. (new) The sensor as claimed in claim 1, wherein the lineoptics comprises a convergent lens *(page 11)*.

29. (new) The sensor as claimed in claim 9, wherein the laser focused beam is focused directly on the document in the X-plane.

30. (new) The sensor as claimed in claim 1, wherein an external light identification is provided which obviates switching on of the laser when external light or ambient light is being received by the external light identification *(page 22, para. 4)*.

31. (new) The sensor as claimed in claim 22, wherein the receiving element (11) provides an external light identification, which obviates switching on of the laser when external light or ambient light is being received by the external light identification *(page 22, para. 4)*.

32. (new) The sensor as claimed in claim 14, wherein the laser has a pulse repetition frequency and a high-pass, low-pass or bandpass filter is provided in a receiver electronics, which pass only the pulse repetition frequency of the laser *(page 23, last para.)*.

33. (new) The sensor as claimed in claim 14, wherein the response signal is averaged over a number of laser pulses *(page 24)*.

34. (new) The sensor as claimed in claim 1, wherein optical filters pass only a desired wavelength of the response signal *(page 24, line 2, 3)*.

35. (new) The sensor as claimed in claim 1 wherein the sensor has a housing and one or more batteries are arranged in the housing *(page 14, last para.)*.

ELECTION/RESTRICTION

Claims 16-19 are now directed to a sensor that is ultimately dependent on claim 1. The specific kind of conversion effect claimed in claim 16-18 respectively directly affects the excitation wavelength and the response wavelength of claim 1. Consequently this also affects the features of the sensor, for instance the beam source, the focusing optics, the detection optics and the evaluation unit. These units are sensitive to a certain excitation/response wavelength and therefore are directly modified by the specific kind of conversion effect. Claim 19 refers to claim 18 which in turn refers to claim 14 directed to a pulsed laser. Therefore it is proper, that claim 19 relies on a pulse response with respect to an excitation pulse. Accordingly, Applicant respectfully submits that a restriction is not necessary.

REJECTIONS UNDER 35 U.S.C. § 103

The Examiner rejected claims 1, 8 and 11-20 under 35 U.S.C. §103(a) as being unpatentable over Taylor et al. (US 2001/0035501A1) in view of Taylor (GB 2,342,434A). Claims 2-4 are rejected under 35 U.S.C. §103(a) as being unpatentable over Taylor et al. in view of Taylor and further in view of McWalters (U.S. Patent 4,072,859). Claims 2, 5 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Taylor et al. in view of Taylor and further in view of Faulkerson et al. (U.S. Patent 4,949,391). Claims 7, 9 and 10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Taylor et al. in view of Taylor and further in view of Owens (U.S. Patent 6,263,584).

Responsive thereto, Applicant has amended the claims to clearly define over the cited art. Generally, amended claim 1 sets forth the following claim elements:

A sensor for authenticity identification of a luminescent identification feature on a document comprising:

a beam source (1) and a focusing optics (2,3)

a radiation receiver having a detection optics (9, 9', 10) and an evaluation unit (11), wherein

- the sensor is a manually controlled sensor,

- the beam source (1) is formed as a laser and

- the focussing optics (2,3) has a lineoptics (2,3) comprising a cylindrical lens, wherein the focused beam (34) is a laser focus beam (32,33) which is produced by the laser

passed through the lineoptics (2,3) and

is imaged differently in the X-direction and Y-direction on the document (5).

Most amendments have been taken from the original wording of claim 1, 7 and 8. The wording has been changed in proper order merely to clarify the technical structure of the subject matter of claim 1.

From a novelty viewpoint, the claimed invention is patentable over Taylor et al. and Taylor because neither reference individually teaches nor fairly suggests a sensor comprising a laser and a cylindrical lens.

With regard to claim rejections under 35 U.S.C. §103, Applicant respectfully submits that the subject matter of claims 1 et al. is considered patentable over the prior art. Preliminarily, as noted above, neither Taylor et al. nor Taylor discloses a laser or a cylindrical lens. Consequently also a combination of these documents cannot lead one skilled in the art the subject matter of the claimed invention. In particular, a lineoptics comprising a cylindrical lens is considered to be an inventive feature in view of the prior art.

Taylor et al. discloses in paragraph 41 "a diffuse focus 28 so that an area of note 3A moves through the detection zone, i.e. a strip across the note will be examined rather than just one single spot or a line..." However, it is also indicated that "28 is shown as a point on figure 6." Therefore Taylor et al. gives only vague hints to form a diffuse focus in form of an area like a strip. Rays may be brought to a diffuse focus by numerous ways. The disclosure of Taylor et al. fails to describe how a diffuse focus may be achieved and merely indicates an effect, which can be achieved by numerous specific ways. In contradistinction, the sensor claimed in instant claims 1 et al. has a complex lineoptics (2,3) comprising a cylindrical lens as an essential feature. The lineoptics for instance may be achieved by the further features of new claims 24-28 as described in the specification on page 20, paragraph 2 and page 11, last paragraph and page 12,

first paragraph. The disclosure of Taylor et al. does not imply to use a lineoptics comprising a cylindrical lens to achieve a diffuse focus.

Moreover, Taylor et al. teaches to use the very same lens 19 in an excitation path and also in a response path. In paragraph 38 of Taylor et al., it is taught that "the light from source 16A passes through filter 21 into a lens 19." In paragraph 41 of Taylor et al. it is taught that "fluorescence light 12 shines from focus 28 through lens 19, filter 22 and back as parallel rays, into detector 6A." This directly contradicts the teaching of amended claims 1 et al. wherein on the one hand a beam source and a focusing optics are applied as parts of an excitation optics. Separated from the excitation optics, claims 1 et al. have on the other hand a radiation receiver comprising a detection optics and an evaluation unit. Consequently the detection optics is separated from the focusing optics according to the elements of claims 1 et al. Taylor et al. teaches to use merely a single optics for both an excitation path and a response path. As the teaching of Taylor et al. can only be applied in its entirety and on the whole it is not possible to pick certain elements of the disclosure of Taylor et al. and combine these mosaic-kind features with other features. The entire teaching of Taylor et al. contradicts the subject matter of the claims as amended.

As a second aspect of the invention it must be stressed, that the claimed lineoptics comprising a cylindrical lens is adapted to form a laser beam of a beam source, i.e. the focused beam is a laser focused beam (32, 33). This means, that the lineoptics presently claimed is adapted to the coherent light. Upon considerable appreciation of the invention, it must be recognised that the focusing of coherent light is subject to very much different conditions than the focusing of incoherent light. Taylor et al. and Taylor use a bulb or an LED, i.e. both documents teach to apply incoherent light. The Examiner should recognize and one may learn from any handbook of laser physics, that for instance the focusing of incoherent light has very much different behaviour than the focusing of coherent light. Consequently, even in the case of a combination of the teachings of Taylor et al. and Taylor, one skilled in the art will arrive at a subject matter which is completely different from the subject matter of amended claims 1 et al. That is, the means to bring the rays 11 to a diffuse focus 28 of Taylor et al. will in any case merely be adapted for incoherent light. Therefore such combination of Taylor et al. and Taylor

will not achieve the requirements of the invention as set forth in claims 1 et al. Even a combination of Taylor et al. and Taylor will not achieve to image a laser focused beam (32, 33) differently in the X-direction and Y-direction on the document. That is, the beams (32, 33), being the feature of instant claims 1 et al., will not be achieved by a combination of Taylor et al. and Taylor.

Accordingly, Applicant respectfully submits that Taylor et al. in view of Taylor would fail to teach or reasonably suggest to one skilled in the art a sensor for authenticity identification of a luminescent identification feature on a document comprising a beam source and a focusing optics for illuminating the identification feature with a focused beam at a wavelength in the form of an excitation wavelength to optically excite at least a subregion of the identification feature and wherein the identification feature may respond in an optical response signal at a same or different wavelength in the form of a response wavelength, a radiation receiver for detecting and evaluating the response wavelength, wherein the focused beam is emitted from the beam source and is converted by focusing optics in such a manner that a scanning bar approximately in the form of a line is projected on the surface of the document and having a detection optics and an evaluation unit, wherein the optical response signal is passed via detection optics to the evaluation unit which evaluates the optical response signal, and wherein the sensor is a manually controlled sensor, the beam source is formed as a laser, and the focusing optics has a lineoptics comprising a cylindrical lens, wherein the focused beam is a laser focused beam, which is produced by the laser passed through the lineoptics and is imaged differently in the X-direction and Y-direction on the document, as claimed.

Applicant respectfully submits that the present invention is patentable over the cited art even though Owens discloses a laser line 52. However, the laser line 52 of laser source 22 disclosed by Owens is used as a reference line (column 4, line 48). It is strictly opposed that such teaching of a reference line may be applicable in the technical field of the subject matter claimed in claim 1, as amended. The subject matter of claims 1 et al. is used to solve the object of the invention as indicated on page 20, second last paragraph of the specification. Such object can only be achieved with regard to manually controlled sensors comprising a low intensity lasers as these may be moved freely by the hand of a user. Furthermore the laser line of the

instant application is adapted to optically excite a document to develop fluorescence. Therefore a high intensity has to be achieved. These two objects seem to contradict each other but the sensor of instant claim 1 surprisingly achieves these opposing objects in a highly advantageous way.

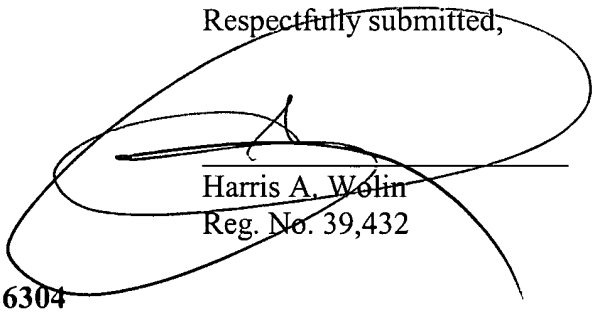
In contradistinction, Owens merely discloses a fixed laser mounted to a desk and which is merely used as a marker laser. A marker laser is not provided to optically excite anything. Consequently, one skilled in the art would not even think to combine the teaching of Owens with one or both of the teachings of Taylor et al. and Taylor. Even if so, such combination would not lead to the subject matter as claimed for the reasons as outlined above.

For the foregoing reasons, reconsideration is respectfully requested.

An earnest effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that claims 1-7, 9-19 and 21-35, consisting of independent claim 1 and the claims dependent therefrom, are in condition for allowance. Passage of this case to allowance is earnestly solicited. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper, including $234 for 13 excess total claims, may be charged on Deposit Account 50-1290.

Respectfully submitted,



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